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Engelhardt et al.

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(54) **OLIGO- OR POLYNUCLEOTIDES
COMPRISING PHOSPHATE-MOIETY
LABELED NUCLEOTIDES**

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(75) Inventors: **Dean Engelhardt**, New York, NY (US);
Elazar Rabbani, New York, NY (US);
Stanley Kline, Brooklyn, NY (US);
Janes G. Stavrianopoulos, New York,
NY (US); **Dollie Kirtikar**, Elmhurst,
NY (US)

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(73) Assignee: **Enzo Life Sciences, Inc. c/o Enzo
Biochem, Inc.**, Farmingdale, NY (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
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Primary Examiner—John S. Brusca

(74) *Attorney, Agent, or Firm*—Ronald C. Fedus; Natalie
Bogdanos

(21) Appl. No.: **08/479,997**

(57) **ABSTRACT**

(22) Filed: **Jun. 7, 1995**

The present invention provides a nucleotide having the
formula,

Sig-PM-SM-BASE

Related U.S. Application Data

(60) Continuation of application No. 08/046,004, filed on
Apr. 9, 1993, now abandoned, which is a continuation
of application No. 07/532,461, filed on May 31, 1990,
now abandoned, which is a division of application
No. 07/140,980, filed on Jan. 1, 1988, now aban-
doned, which is a continuation of application No.
06/674,352, filed on Nov. 21, 1984, now abandoned,
which is a continuation of application No. 06/391,
440, filed on Jun. 23, 1982, now abandoned.

wherein PM is a phosphate moiety, SM is a sugar moiety and
BASE is a pyrimidine, purine or 7-deazapurine moiety. PM
is attached to the 3' or the 5' position of the sugar moiety
when the nucleotide is a deoxyribonucleotide and at the 2',
3' or 5' position when the nucleotide is a ribonucleotide.
BASE is attached to the 1' position of SM from the N¹
position when BASE is a pyrimidine or the N⁹ position when
BASE is a purine or 7-deazapurine. Sig is covalently
attached to PM directly or via a chemical linkage, and
represents a detectable moiety covalently attached to SM
directly or through a linkage group. Also provided are an
oligo- or polynucleotide comprising at least one such phos-
phate-moiety labeled nucleotide, and other compositions
including those wherein a polypeptide is terminally ligated
or attached to the oligo- or polynucleotide. The phosphate-
moiety labeled nucleotide, and the oligo- or polynucleotides
and other compositions comprising such phosphate-moiety
labeled nucleotides, are useful as diagnostic tools for detect-
ing analytes and as therapeutic agents.

(51) **Int. Cl.**
C12N 15/11 (2006.01)

(52) **U.S. Cl.** **536/23.1; 536/25.32**

(58) **Field of Classification Search** 435/6,
435/7.1; 536/26.6, 25.31, 25.32, 23.1
See application file for complete search history.

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116 Claims, 4 Drawing Sheets

